June 6, 2006

John Bunyak, Chief
National Park Service
Air Resource Division
P.O. Box 25287
Denver, CO 80225

Re: Comments on Montana's Draft CALPUFF Modeling Protocol for BART

Dear Mr. Bunyak:

Thank you for your recent comments on the draft Montana CALPUFF modeling protocol. As a reminder, the CALPUFF modeling protocol is not required to be formally adopted by the Montana Board of Environmental Review. However, the Montana Department of Environmental Quality (Department) solicited public comment so that all interested parties had an opportunity to review and comment on the modeling protocol as it applies to BART.

The Department intends to adopt this CALPUFF guidance for all long range modeling submitted for BART, NSR, and PSD. The guidance will be posted along with the other modeling guidance on the Department's Air Resources Management Bureau web site (http://www.deq.mt.gov/AirQuality/Visibility.asp). The guidance will be subject to change as needed. Your participation in this process has given us a strong start.

Comments 1: Extension of Modeling Domain 50 km of Class I Areas
The Montana BART modeling domain (over 670,000 km^2) extends into Idaho, Oregon, North Dakota, South Dakota, Wyoming, and Canada. This domain contains Montana's mandatory federal Class I areas (Class I areas) and six additional Class I areas in neighboring states. Eighteen Class I areas may be evaluated using BART modeling. Extend the modeling domain an additional 50 km beyond the Class I areas in the neighboring states would greatly increase an already very extensive domain and increase the number of Class I areas.

Through preliminary modeling, the Department determined that the controlling Class I areas (i.e., those areas most affected by BART-eligible sources in Montana) are located in Montana. Limiting the domain to the Montana Class I areas and the additional Class I areas in neighboring states would adequately assess visibility impacts in any Class I area beyond the present Montana BART modeling domain.

Comment 2: BART-Subject Pollutant By Pollutant Analysis
According to BART modeling guidelines issued by the U.S. Environmental Protection Agency (EPA),[1] sources required to apply BART (subject-to-BART) must be analyzed on an individual basis to determine the effectiveness of BART controls. The Department intends to analyze the composite effect of all visibility-impairing pollutant emissions for each 'subject-to-BART' source after the BART control(s) are identified to determine the total impact of the pollutants on the visibility in a Class I area (i.e., Table 7.0D). This has been clarified in the draft CALPUFF modeling protocol.

The Department intends to base any determination of whether a BART-eligible source is 'subject-to-BART' on the modeling of all visibility-impairing pollutant emissions from BART-eligible sources on a plant-wide basis.

Comment 3: Request to Review Deviating BART Modeling Protocols
The Department intends to discuss with EPA and the Federal Land Managers (FLM) all site-specific modeling requests that deviate from the Montana BART modeling protocol.

Comment 4: Request for Notification of New Posting on Department's Website
During the course of rule development and the formal rulemaking process, the Department routinely notifies interested parties via email of new postings on the Department's visibility website.

Comment 5: CALPUFF Nested Grid Modeling Scenarios
The Department anticipated a separate CALPUFF modeling domain and model runs would be required for all nested grid scenarios.

Comment 6: Consistent Vertical Cell Face Heights
The modeling protocol has been changed to reflect consistent vertical cell face heights for all model years for both CALMET and CALPUFF.

Comments 7-8: Questionable TERRAD, RMAX1, and R1 Values
The Department performed a sensitivity analysis varying TERRAD, RMAX1, and R1 values. From this analysis, the BART modeling protocol was changed to reflect the following values:
TERRAD = 15 (NPS recommendation: 10 – 20 km)
RMAX1 = 40 (NPS: 30 – 50 km)
R1 = 20 (NPS: 20 km)

Comment 9: PM Speciation Data
The Department will apply any PM speciation data relevant to the Montana BART-eligible/subject sources provided by the National Park Service (NPS). Furthermore, both the NPS and U.S. Forest Service requested, for any gas-fired combustion source, the "filterable" PM be assigned as organic carbon (OC) and the "condensable" PM as either primary sulfate or secondary organic aerosol (SOA), depending on the level of the SO_2 emissions. This information was incorporated into the Montana BART modeling protocol.

Comment 10: Limited Ozone Data
Ozone data from the Theodore Roosevelt National Park in North Dakota will be included in modeling analyses. This will increase the number of the ozone sites to three, including Glacier and Yellowstone National Parks.

[1] Federal Register. 2005. EPA Regional Haze Regulations and Guidelines for Best Available Retrofit Technology (BART) Determinations; Final Rule. Federal Register. July 6, 2005. Vol. 70. No. 128. p. 39103-39172.

In addition, the default ozone background will be 30 ppb from October through May, and 50 ppb from June through September. The Department will utilize any additional representative data that becomes available.

Comment 11: Vertical Layers Discrepancy
The error has been corrected.

Comment 12: Definition of Natural Background
The background visibility conditions for the Class I areas will be based on the best 20% visibility days. This has been clarified in the protocol.

Comment 13: Application of New IMPROVE Haze Equation
The Department has contacted Kevin Golden at EPA Region VIII on this matter. The current IMPROVE light reconstruction equation will be used in BART CALPUFF modeling. The protocol has been changed to reflect this fact.

Comment 14: Use of Puff Splitting
The Department is aware the use of puff splitting will increase the computer processing time. The amount of puff splitting may be increased in the final modeling analysis.

In the last paragraph on page 43, the CALPUFF VISDAT variable should have been noted as "Not Used" - this error has been corrected in the protocol. The relative humidity adjustment factors for each Class I area from the EPA's "Guidance for Estimating Natural Background Conditions under the Regional Haze Rule" will be entered in CALPOST.

In addition, in EPA's "Guidance for Estimating Natural Background Conditions under the Regional Haze Rule," Table A-2 will be used instead of Table A-3. This change has been noted in the protocol.

If you have any questions or additional comments on the draft modeling protocol, please feel free to contact me at (406)444-7305 or e-mail at bhabeck@mt.gov.

Sincerely,

Robert J. Habeck
AQ Policies & Planning
Science Program Supervisor
Air Resources Management Bureau